

**DEPARTMENT OF COMPUTER SCIENCE
GITAM INSTITUTE OF SCIENCE
GITAM UNIVERSITY**

Syllabus for M.Phil. & Ph.D. entrance examination

PART-A

Unit-I

Research Methodology: Meaning of Research, Objectives of Research, Motivation in Research, Types of Research, Research Approaches, Significance of Research, Research Methods versus Methodology,

Defining the Research Problem: What is a Research Problem? Selecting the Problem, Necessity of Defining the Problem.

Unit-II

Research Design: Meaning of Research Design, Need for Research Design, Features of a Good Design.

Sampling Design: Census and Sample Survey, Implications of a Sample Design , Steps in Sampling Design, Criteria of Selecting a Sampling Procedure.

Unit-III

Data Structures: Understanding of fundamental data structures- Lists, stacks, queues, heaps, trees and graphs and their applications. Searching and sorting Techniques

Unit-IV

Operating Systems: Functions, Types of OS, Operating System Structure, Services, System Boot, Process, CPU Scheduling, Process Synchronization, Deadlocks, Memory Management, File Access Methods, Unix Structure and Simple Commands.

PART-B

Unit-V

Object Oriented Programming: Principles of Object Oriented Programming, C++ Tokens, Expressions, Control Structures, Functions in C++, Classes and Objects, Constructors and Destructors, Operator Overloading, Inheritance, Polymorphism.

Unit-VI

Database Management System: Introduction, Data Models, Schemas And Instance, Three-Schema Architecture And Data Independence, E-R Diagrams, Relational Model, Database Design, Integrity Constraints, Normal Forms, SQL Queries.

Unit-VII

Data Communication: Introduction To Data Communications, Networks, Protocols, Standards, Topology, Transmission Media And Modes, Layers in OSI Model, TCP/IP Protocol Suite and their functionality.

Unit-VIII

Section-II consists of definitions, concepts

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1. Distinguish between Research methods and Research methodology.
2. Mention the steps in sampling designs.
3. What are the applications for the tree data structure?
4. Give the state transition diagram of a process.
5. What is meant by inheritance?
6. Define 2nd Normal Form.
7. Explain the personal and team process models.
8. What is the difference between error detection and error correction?
